

*Super Switcher*

*User's Manual*

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## **AVL Super Switcher User's Guide**

**Revisions:** 01-25-90 Working Copy  
10-26-90 Rel 1.2 of audio firmware  
11-09-90 Clarifications to Preamp Audio description  
04-16-91 Updated Video sections

### **Reference Documents**

- 1. AVL Procall-X User's Guide**
- 2. AVL Procall-5 User's Guide**
- 3. AVL Show Pro User's Guide**

### **Introduction**

The Super Switcher provides audio source/destination switching and volume control, as well as video source/destination switching and blackburst generation (NTSC). The addition of the Super Switcher to AVL's product line provides a key element to producers interested in creating multi-media shows. Using its AVL cue interface, the Super Switcher can be synchronized to the rest of a multi-media production.

This manual describes the operation of AVL's Super Switcher. It is primarily intended as a guide to facilitate the programming and installation of the Super Switcher. The manual is divided into the following sections:

Functional Overview	This section describes the basic functions provided by the Super Switcher.
Installation and Setup	Options for configuring the Super Switcher are described.
Programming Interface	Description of Super Switcher cues.
Application Notes	Tips on programming of the Super Switcher are provided.

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### **Functional Overview**

The Super Switcher is a modular A/V switch that can be configured to match the requirements of a particular application. If the application's requirements change, the Super Switcher can be upgraded to meet the new requirements. Three configurations are available. They are:

Version A	Audio switching/mixing/volume control
Version V	Video switching/fading
Version AV	Both Audio and Video control

### **Audio Control Functions**

See Figure 1.

The audio control functions comprise:

- o Dual 4 x 1 preamp stereo switching
- o Dual stereo volume control
- o Stereo mixing
- o 4 x 1 amplified stereo switching

### **Video Control Functions**

See Figure 2

The video control functions comprise:

- o 4 --> 2 switching
- o video cross fading (on one of the two outputs)
- o blackburst generation
- o genlocking

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### **Installation and Setup**

#### **Location and Function of Controls**

##### **Front of Unit(see fig. 3)**

###### **1 - AMP LED**

When lit, indicates that the unit is receiving a magnetic tape signal of adequate amplitude for processing.

###### **2 - Message Center Controls**

These buttons enable the user to make menu selections from the extensive Super Switcher options. (Described later in this manual)

###### **3 - Message Center LCD Panel**

Backlit LCD panel for the display of option, status, and error information.

###### **4 - Reset**

When the LCD displays the default message, this button resets the unit. If LCD is not displaying the default message, this button returns the LCD to the default message.

###### **5 - Error Indicator**

When Flashing indicates that the Super Switcher has detected an error of some type. The LCD panel will display a message(s) indicating the type of error(s).

###### **6 - Alert Indicator**

When flashing indicates that a Show Manager is in control of the show.

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### **7 - Ok indicator**

When flashing indicates that the Super Switcher is operating in an error free mode.

### **8 - LCD Contrast Adjustment**

This hole provides access to the LCD contrast pot. A small flat blade screw driver can be used to adjust the contrast as desired.

### **9 - Keyboard Connector**

For future use.

### **10 - Cartridge Memory Connector**

In future release of Procall will accept cartridge memories programmed by the Super Genesis.

### **11 - Power Switch Switch**

This switch controls power to the Super Genesis.

Rear of Unit(see fig. 4)

#### **1 - Mag Tape Input (2 RCA and 2 XLR Receptacles)**

This input to the Super Genesis carries clock or cue data.

#### **2 - REMOTE CUE SOCKET**

When **AB mode** has been selected at the Message Center (see page 10) the Remote cue allows the user to select appropriate values of offset volume to be used with combinations of low level inputs and speaker outputs.

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This feature allows for last minute adjustments. These adjustments may be necessary to compensate for sound equipment or room variations. In addition, one of these inputs acts as a mute button.

- o (no remote cue input) -- Message Center displays:

REF AEI NORMAL

indicating that preamp sources A (1A) and E (2A) and speaker destination I (A) are selected as the reference. The preamp sources and amplified destination can be selected via the Message Center (see page 10). The volume adjusted preamp output is equal to the algebraic sum of the Volume selected through the Message Center and the Balance, also selected through the Message Center, and the Offset selected through the Remote cue inputs - "focus up" and "focus down" or the message center.

- o (FWD) -- While depressed the Message Center displays:  
TEST CGK 0.0db

indicating that preamp sources C (1C) and G (2C) and speaker destination K (C) are selected as the test sources and destination. While maintaining the FWD button depressed, Focus up will increase the volume offset, for the selected combination of sources and destination, in 0.5 db increments over a range of +10.0 db to -20.0 db.

- o (REV) -- While depressed the volume will be diminished by 15.0 db.
- o (FOCUS UP) -- When the SETUP TEST option combination has been established by pressing the FWD button, the volume level will be offset at a rate of 0.5 db per 0.75 second.
- o (FOCUS DOWN) -- Same as Focus Up, except the volume level will be offset at a rate of -0.5 db per 0.75 second.

Once an offset has been selected in the above manner, it will be saved in the SUPER SWITCHER memory for that combination of sources and destination. When this combination is selected, the saved offset value will be added to the volume.

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When **OPERATE Mode** has been selected at the Message Center, the Remote Control input can be used to establish a new audio environment. Nine preset conditions may be entered at the message center and selected through this input. Two of these can be selected using the Kodak hand control (preset 1 and preset 8) as can magtape input enable. All the presets and magtape enable may be selected by means of an external switch network selecting multiple closures.

### 3 - DIGITRAK CONNECTORS (1-male and 1-female)

Two 9-pin D connectors provide communication with other Super Family products.

### 4 - AC Power Cord

The cord connects the Super Genesis to an appropriate AC outlet.

### 5 - Preamp, Audio User Interface Connectors (26-RCA) (see figures 1 and 3)

The bottom two rows of 8 connectors represent the 8 stereo ports on the Dual 4 x 1 preamp stereo switch. These ports are labelled 1A-D/L, 2A-D/L, and 1A-D/R, 2A-D/R. When programming the unit these ports can be selected by using X-15 Auxiliary relay cues as follows:

1A === A  
1B === B  
1C === C  
1D === D  
2A === E  
2B === F  
2C === G  
2D === H

The top 2 connectors on the left most column, labelled 1L and 1R, can be switched directly to 1A, 1B, 1C, or 1D. The top 2 connectors on the right most column, labelled 2L and 2R, can be switched directly to 2A, 2B, 2C, or 2D. The 2nd and 3rd connectors from the left on the top row are the volume adjusted versions of 1L and 1R. The 2nd and 3rd connectors from the right on the top row are the volume adjusted versions of 2L and 2R. Finally, the 2 middle connectors of the top row are the mix of 1L and 2L and 1R and 2R.



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### **6 - Voltage Selector Switch and Fuse Holder (on side of unit)**

This switch sets the unit for operation at 100VAC, 120VAC, 220 VAC, or 240VAC. In addition, the units fuse is located in a center compartment of the switch.

### **7 - Modem Connector**

Future use

### **8 - Keyboard Connector**

Future use.

### **9 - Amplified Audio Switch User Interface Connectors**

Detachable screw terminals are provided for connection to the 1 x 4 amplified audio switch. When programming the unit these ports can be selected by using X-15 Auxiliary relay cues as follows:

1A === I  
1B === J  
1C === K  
1D === L

### **10 - Main fuse**

### **11 - Video, User Interface Connectors**

The top row of 4 RCA connectors represent video inputs 1-4. The 5 position dip switch connects/disconnects a 75 ohm terminator from each of these inputs as well as the Sync input (located below video input 4). The bottom left RCA is a blackburst (sync) output. The Preview output is the RCA below video input 1. The Program output is located directly below the Preview output. The unit can be programmed to cross fade from one video source to another on the Program output. This can be performed in conjunction with an audio cross fade (on the "mix" outputs), thus achieving audio follow video cross fading. The preview output does cuts only.

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### MESSAGE CENTER AND OPTION SELECTION

The message center consists of a 16 character LCD and the 4 push buttons below it. The LCD displays menu selections accessed by the buttons labeled: Next, Previous, Step, and Select. When not in the menu or error mode, the Message Center displays the software mode, i.e. Procall or Show Pro, the screen number and the status of the source and destination switches.

Option selection on the Super Switcher simply involves locating the desired menu and then selecting which of the possible options is desired. The location menus and selection of options is accomplished via the following buttons:

NEXT	display the next menu
PREV	display the previous menu
STEP	step the cursor through the choices within that menu
SELECT	select the choice currently highlighted by the cursor and store it in non volatile memory

The SUPER SWITCHER's menu is divided into 2 distinct sections, The Set Up section, and the Operation section.

### OPTION DESCRIPTIONS

#### *IPC ABCDEFGHIJKLXX*

This is the default display in "operate" mode. The 1st character indicates the screen number that has been selected. The 2nd and 3rd characters indicate the software mode, Procall (PC) or Show Pro (SP). The next 12 characters indicate which preamp sources and amplifier destinations are selected. The next two digits indicate the sources for the video Program and Preview outputs.

#### *MODE OPRATE PRESET AB*

This menu used to select the Operate, Preset or AB mode. Operate mode allows the unit to respond to cues. Preset mode allows the operator to establish switch and amplifier gain settings for reset, three offset conditions and nine preset selections as well as the rate at which the transition is to be accomplished. AB mode allows the unit to respond to switch closures sensed on the "remote cue input".

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### OPERATE MODE MENU OPTION DESCRIPTIONS

#### *SCREEN 12345 OFF*

Sets screen number that corresponds to the cue address for the unit. If OFF selected only switching cues will function.

#### *CHANNEL ABCD*

Sets the Procall channel address for the unit.

#### *UNIT NUMBER 01*

This information is used when the Super Switcher is connected to a Show Manager. Values between 01 and 30 are valid. When the cursor is on the units digit, each time the SELECT button is pushed the unit number will be increased. When the cursor is positioned on the tens digit, each time the SELECT button is pushed the tens digit will increase and the unit digit will be reset to 0.

**Note:** To activate communication between the Show Manager and this unit, select product type "spec ABC" on the Show Manager's menu, for the unit number entered using this menu.

#### *BAL L----|----R*

This menu adjusts the balance in 1.0 db steps. The step switch is used to position the cursor to the desired balance condition. Then pushing the select switch saves the setting.

#### *IJKL MUTE IJKL*

When Mute is enabled for a particular speaker, anytime there is a command to select or deselect that speaker a 0.05 second period of minimum output level will be inserted between the two relay operations.

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### *IGNORE HOME Y N*

This menu enables (Y) or disables (N) response to Home cues. Move cursor using step to the "Y" or "N" and then press select to choose.

### *MT XFER AUTO MAN*

The Super Switcher has the capability to determine whether the incoming mag tape signal is in the Procall format or the Show Pro format and automatically transfer to the proper routines to interpret which ever format is received. To make use of this capability select auto. To disable this feature select manual. In the manual mode the unit will always remain in the language selected and ignore cues received in the other language.

### *MTIN P5/X SHOPRO*

Select initial language to use on power up. P5/X for Procall or SHOPRO.

## PRESET MODE MENU OPTION DESCRIPTIONS

The preset options allow the user to establish appropriate video source selection, audio volume and source/destination settings for reset and preset conditions, and offsets. The rate for establishing preset conditions is also entered here.

### *DISSOLVE RATE 1*

Rates of 1, 2, 3, 4, 6, 8, 16 and 32 seconds may be entered by pressing the select switch.

### *RST ABCDEFGHIJKL*

The relay closures to be established on power on, home or reset can be entered by moving the cursor with the step switch and selecting the appropriate relays with the select switch.

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### *RST 1 00+-2 00+-*

The audio volume to be established on power on, home or reset can be entered by moving the cursor to the "+" or "-" positions with the step switch to increment or decrement the volumes using the select switch.

### *RST PGM X PREV X*

Selects Video sources for Program and Preview buses after power on, home, or reset. Values of 1-4 can be entered by moving the cursor to the X, using the step button, and then pressing Select button to scroll through choices. Since the action takes place when select key is pushed, this menu can be used during setup to check connections, in addition to its use for default settings.

### *OS1 ABCDEFGHIJKL*

This menu enables the user to select a pattern of relay closures. When this pattern is detected in operation, the following volume selections will be algebraically added to the current volume.

### *OS1 1 00+-2 00+-*

This menu enables the user to select volumes to be added when the previous relay patterns are detected.

### *OS2 ABCDEFGHIJKL*

(Same as OS1 ABCDEFGHIJKL)

### *OS2 1 00+-2 00+-*

(Same as OS1 1 00+-2 00+-)

### *OS3 ABCDEFGHIJKL*

(Same as OS1 ABCDEFGHIJKL)

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*OS3 1 00+-2 00+-*

(Same as OS2 1 00+-2 00+-)

*PSN ABCDEFGHIJKL*

This menu allows the user to select a pattern of relay closures to be established when a particular preset (combination of switch closures on the Remote cue input) has been issued. There are nine menu options. One to select the relays for each of the nine presets.

Remot cue input pin number					Preset #
4(foc)	3(rev)	2(fwd)	1(foc)	5(com)	
OPEN	OPEN	OPEN	CLOSE	COM	1
OPEN	OPEN	CLOSE	OPEN	COM	2
OPEN	OPEN	CLOSE	CLOSE	COM	3
OPEN	CLOSE	OPEN	OPEN	COM	4
OPEN	CLOSE	OPEN	CLOSE	COM	5
OPEN	CLOSE	CLOSE	OPEN	COM	6
OPEN	CLOSE	CLOSE	CLOSE	COM	7
CLOSE	OPEN	OPEN	OPEN	COM	8
CLOSE	OPEN	OPEN	CLOSE	COM	9(disables cues)
CLOSE	OPEN	CLOSE	OPEN	COM	Re-enable cues after preset 9

*PSN 1 00+-2 00+-*

This menu allows the user to select the volumes to be established when a particular preset has been selected. There are nine menu options. One to select the volumes for each of the nine presets.

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### *PSN PGM X PREV X*

Selects Video sources for Program and Preview buses after a preset has been selected. Values of 1-4 can be entered by moving the cursor to the X, using the step button, and then pressing Select button to scroll through choices.

**Note:** Presets 1 through 8 once established will be immediately overridden by any magtape input received. Preset 9 disables magtape input until the magtape is again enabled by issuing Preset 10.

### AB MODE MENU OPTION DESCRIPTIONS

The SetUp Options in conjunction with the remote cue switches (Kodak EC-3 hand control) allow the user to determine appropriate values of volume offsets to be used with each combination of low level input channels and speaker outputs.

### *REF AEI NORMAL*

This is the default display when in "setup" mode.

### *SETUP TEST A E I*

With the cursor on A, pressing SELECT will cause the display to step through the available preamp ports (A-D). The STEP switch can be used to move the cursor to the E position, pressing SELECT will cause the display to step through the available preamp ports (E-H). The STEP switch can be used move the cursor to the I position, pressing SELECT will cause the display to step through the available Speaker ports (I-L or blank).

### *SETUP REF A E I*

This option functions identically to the SETUP TEST option.

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### *OFST AEI -+ 0.0*

In addition to setting offsets using a hand control, this menu can be used. First select the combination of low level input channels and speaker channel and then increment or decrement the volume by stepping to "-" or "+" and pressing select.

## ERROR MESSAGES

MT CLOCK BAD	When executing from ram cartridge sync'ed to clock track and bad clock data is detected.
MT SIGNAL POOR	Unit is receiving poor, but acceptable mag tape data.
MT BAD CUE LOST	Unit is receiving unacceptable mag tape data.
DIGITRAK ERR	Indicates that the Super Switcher is receiving bad Digitrak input.
CONFIGURATION ERR	Indicates that the a hardware module inside the Super Switcher has failed a configuration check.
CARTRDG MEM BAD	Data error found inside cartridge memory.
OPTIONS MISMATCH	Menu options in non-volatile memory have been corrupted.
RAM BATTERY FAIL	On power up the unit detected a failure of the battery backup for the option memory.



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### Programming Interface

The Super Switcher requires one Dove and one X-15 assignment. The Super Switcher uses the Tray Position cue, which is entered using the letters TP, the position 00-80, and then the projector (Address) letter assigned to the Super Switcher. In the command listing, projector addresses A,B,C are used. Where A sets audio volume 1, B sets audio volume 2, and C selects the video sources. If projector addresses A,B,C are already used, DEF, GHI, JKL, or MNO can be used. The Super Swither screen number menu will configure it to respond to the correct addresses as follows:

- o screen 1 === ABC
- o screen 2 === DEF
- o screen 3 === GHI
- o screen 4 === JKL
- o screen 5 === MNO

N.B. Cues are ignored by the Super Switcher following power on or a home cue. To enable cues a XN M (Latch on relay M) must be issued. When this cue is received, the Super Switcher will indicate that mag tape is enabled by displaying and "M" on its Message Center.

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## Super Switcher Command Listing

### Preamp control commands:\*

Latch A (XNA) select preamp port 1A  
Latch B (XNB) select preamp port 1B  
Latch C (XNC) select preamp port 1C  
Latch D . select preamp port 1D  
Latch E . select preamp port 2A  
Latch F . select preamp port 2B  
Latch G . select preamp port 2C  
Latch H (XNH) select preamp port 2D  
Alternate A (#A A) set rate for fades on volume channel 1  
Alternate B (#B B) set rate for fades on volume channel 2  
Tray A set volume 1 (0 -- 80)  
Tray B set volume 2 (0 -- 80)

\*Switcher limits range of amplification to -49.0db to +31.0db

### Amplified Switch Control:

Latch I (XNI) selects Amp port A  
Latch J . selects Amp port B  
Latch K . selects Amp port C  
Latch L (XNL) selects Amp port D

### Video Control:

Alternate (#A C) set rate and specify cross fade type switch (genlocked sources)  
Dissolve (#D C) set rate and specify fade through black type switch  
Tray C 01 Prog = Black Prev = 1  
Tray C 02 Prog = Black Prev = 2  
Tray C 03 Prog = Black Prev = 3  
Tray C 04 Prog = Black Prev = 4  
Tray C 10 Prog = 1 Prev = 1  
Tray C 11 Prog = 1 Prev = 1  
Tray C 12 Prog = 1 Prev = 2  
Tray C 13 Prog = 1 Prev = 3  
Tray C 14 Prog = 1 Prev = 4  
Tray C 20 Prog = 2 Prev = 1  
Tray C 21 Prog = 2 Prev = 1  
Tray C 22 Prog = 2 Prev = 2  
Tray C 23 Prog = 2 Prev = 3  
Tray C 24 Prog = 2 Prev = 4  
Tray C 30 Prog = 3 Prev = 1  
Tray C 31 Prog = 3 Prev = 1  
Tray C 32 Prog = 3 Prev = 2  
Tray C 33 Prog = 3 Prev = 3  
Tray C 34 Prog = 3 Prev = 4  
Tray C 40 Prog = 4 Prev = 1  
Tray C 41 Prog = 4 Prev = 1  
Tray C 42 Prog = 4 Prev = 2  
Tray C 43 Prog = 4 Prev = 4

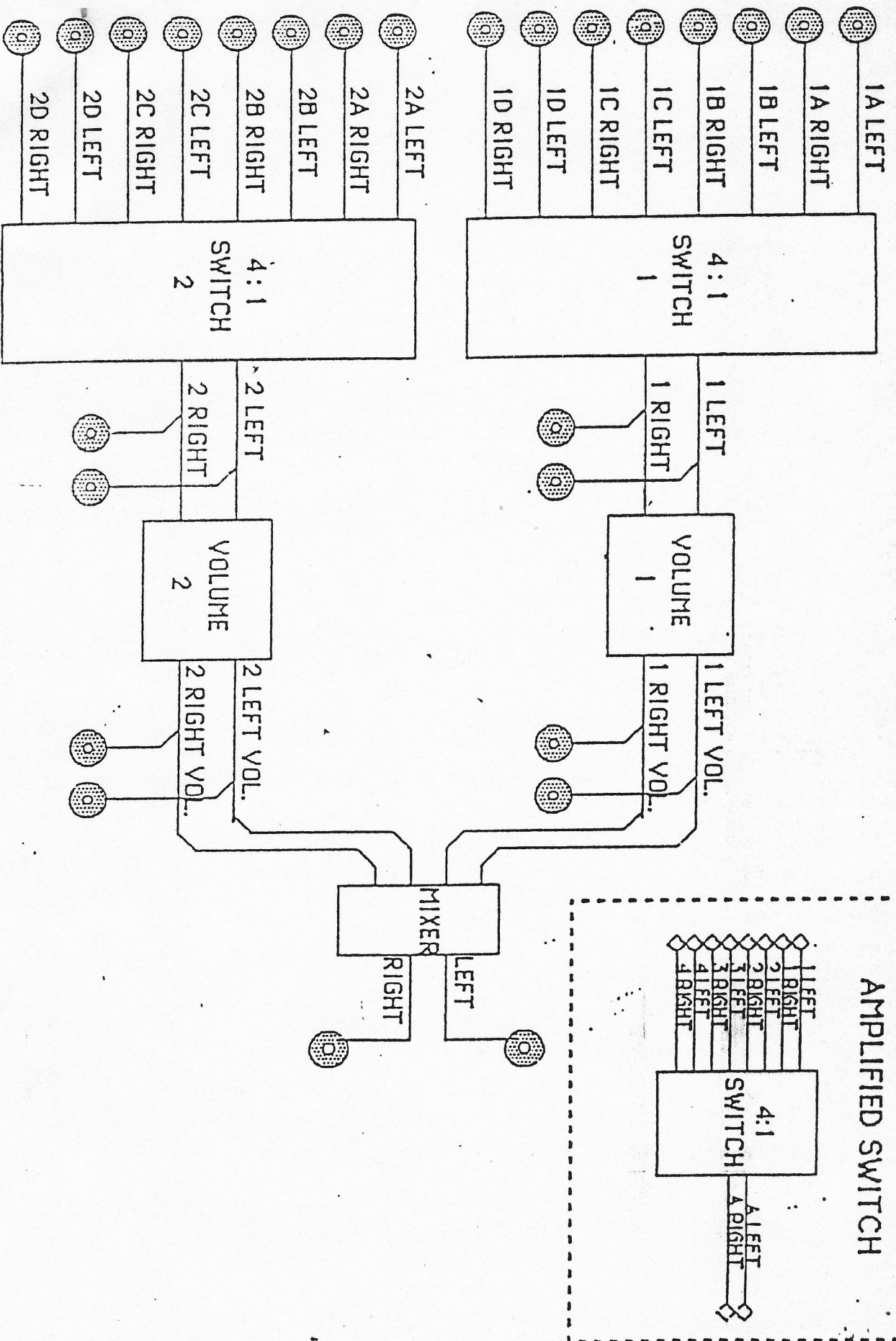


FIG. 1 AUDIO CONTROL BLOCK DIAGRAM

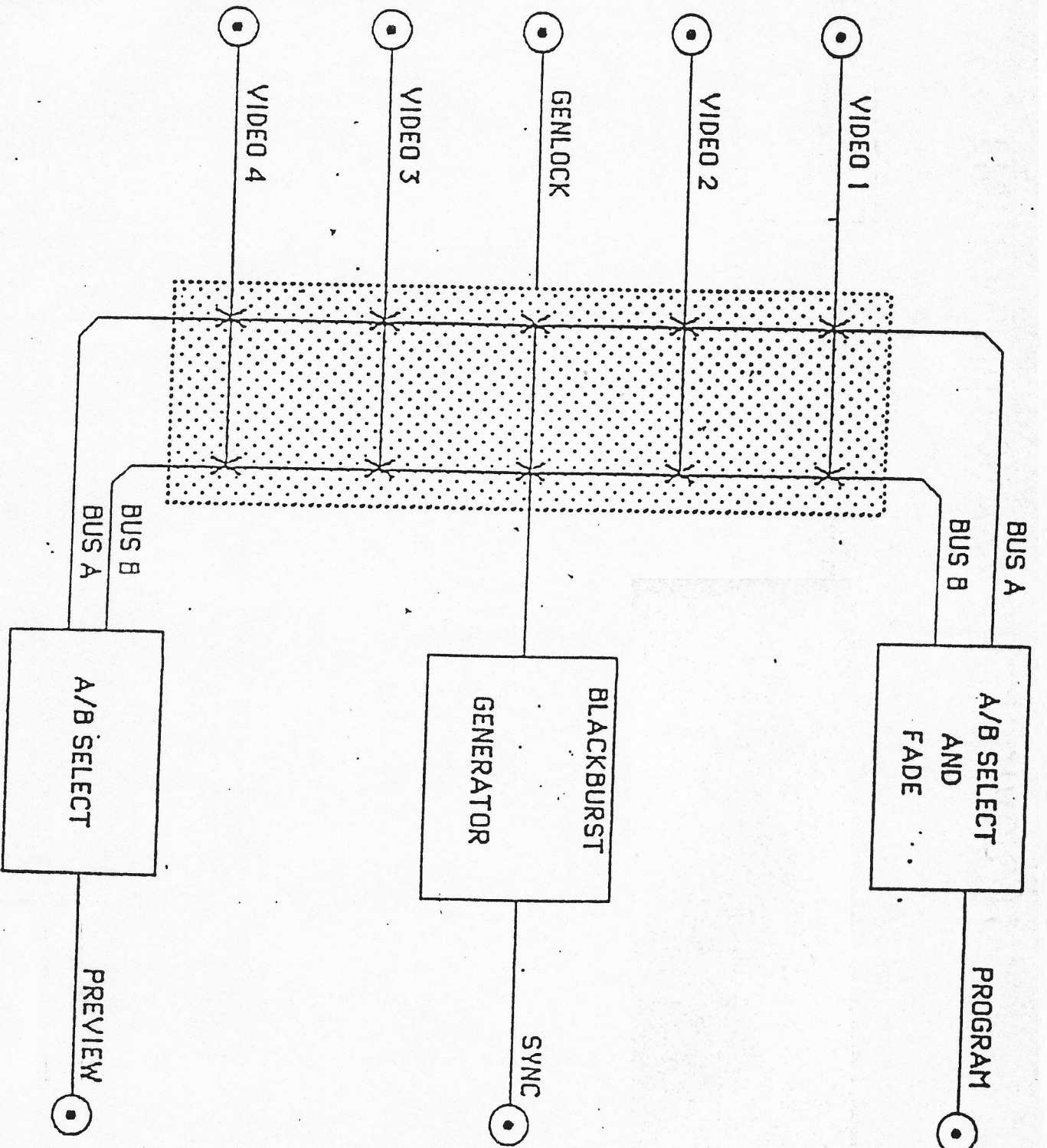


FIG. 2 VIDEO CONTROL SYSTEM

